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For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: SKRP, ASTRAY, STRING, VACM ASSOCIATED WITH METABOLIC CONTROL

(57) Abstract: The present invention discloses novel uses for energy homeostasis regulating proteins and polynucleotides encoding these in the diagnosis, study, prevention, and treatment of metabolic diseases and disorders.



**WO 2004/028554 A3**

## INTERNATIONAL SEARCH REPORT

 Internat. Application No  
 PC 03/10799

## A. CLASSIFICATION OF SUBJECT MATTER

 IPC 7 A61K38/16 A61P3/04 C12N5/22 G01N33/68 A61K48/00  
 A01K67/027

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K A01K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, BIOSIS, Sequence Search, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/81590 A (INCYTE GENOMICS INC ; PATTERSON CHANDRA (US); STEWART ELIZABETH A () 1 November 2001 (2001-11-01) page 6, line 20 - page 11, line 11 page 14, lines 22-29 page 24, lines 12-24 page 28, lines 10-15 page 37, line 32 - page 40, line 31 claims 1-46 sequence ID No 2 ----- -/--	1-33

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

6 February 2004

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02.06.2004

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

Intern. Application No  
PC 03/10799

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/73060 A (MEYERS RACHEL A ;MILLENNIUM PHARM INC (US)) 4 October 2001 (2001-10-04)	1-26,32, 33
Y	page 2, line 13 - page 12, line 30 page 17, line 1 - page 22, line 6 page 26, line 1 - page 46, line 25 page 54, line 16 - page 71, line 15 page 76, line 13 - page 81, line 26 page 94, line 1 - page 108, line 4 claims 1,5,8,15-37; figure 1 -----	27-31
X	WO 01/12819 A (PLOWMAN GREGORY D ;LIOUBIN MARIO (US); SUGEN INC (US); WHYTE DAVID) 22 February 2001 (2001-02-22)	1-26,32, 33
Y	abstract page 4, line 9 - page 10, line 25 page 28, line 5 - page 30, line 18 page 32, line 10 - page 33, line 12 page 40, lines 7-10 page 64, line 19 - page 66, line 26 page 70, line 23 - page 72, line 19 page 73, line 10 - page 87, line 7 Seq.ID No. 28claims 1-5,11-23 -----	27-31

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 03/10799

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: **1-33 (all partially)**  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
**see FURTHER INFORMATION sheet PCT/ISA/210**
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**see additional sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
**claims 1-33 (all partially)**

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1. Claims 1-33 (all partially)

Pharmaceutical composition comprising a GH7042 homologous protein or/and a functional fragment thereof, a nucleic acid molecule encoding a GH7042 homologous protein or/and a functional fragment thereof or/and a modulator/effector of said nucleic acid molecule or/and said protein together with pharmaceutically acceptable carriers, diluents and additives, as well as the use of said molecules for the manufacture of a medicament for the treatment of obesity, diabetes etc or a non-human transgenic animal exhibiting a modified expression of a CG7042 homologous polypeptide, or a recombinant host cell exhibiting a modified expression of a CG7042 homologous polypeptide, or a method of identifying a polypeptide involved in the regulation of energy homeostasis, or a method of screening for an agent which modulates the interaction of a CG7042 homologous polypeptide.

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2. claims: 2. Claims 1-33 (all partially)

Pharmaceutical composition comprising a astray homologous protein or/and a functional fragment thereof, a nucleic acid molecule encoding a astray homologous protein or/and a functional fragment thereof or/and a modulator/effector of said nucleic acid molecule or/and said protein together with pharmaceutically acceptable carriers, diluents and additives, as well as the use of said molecules for the manufacture of a medicament for the treatment of obesity, diabetes etc or a non-human transgenic animal exhibiting a modified expression of a astray homologous polypeptide, or a recombinant host cell exhibiting a modified expression of a astray homologous polypeptide, or a method of identifying a polypeptide involved in the regulation of energy homeostasis, or a method of screening for an agent which modulates the interaction of a astray homologous polypeptide.

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3. claims: 3. Claims 1-33 (all partially)

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Pharmaceutical composition comprising a string homologous protein or/and a functional fragment thereof, a nucleic acid molecule encoding a string homologous protein or/and a functional fragment thereof or/and a modulator/effector of said nucleic acid molecule or/and said protein together with pharmaceutically acceptable carriers, diluents and additives, as well as the use of said molecules for the manufacture of a medicament for the treatment of obesity, diabetes etc or a non-human transgenic animal exhibiting a modified expression of a string homologous polypeptide, or a recombinant host cell exhibiting a modified expression of a string homologous polypeptide, or a method of identifying a polypeptide involved in the regulation of energy homeostasis, or a method of screening for an agent which modulates the interaction of a string homologous polypeptide.

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## 4. claims: 4. Claims 1-33 (all partially)

Pharmaceutical composition comprising a CG61401 homologous protein or/and a functional fragment thereof, a nucleic acid molecule encoding a GH61401 homologous protein or/and a functional fragment thereof or/and a modulator/effector of said nucleic acid molecule or/and said protein together with pharmaceutically acceptable carriers, diluents and additives, as well as the use of said molecules for the manufacture of a medicament for the treatment of obesity, diabetes etc or a non-human transgenic animal exhibiting a modified expression of a CG61401 homologous polypeptide, or a recombinant host cell exhibiting a modified expression of a CG61401 homologous polypeptide, or a method of identifying a polypeptide involved in the regulation of energy homeostasis, or a method of screening for an agent which modulates the interaction of a CG61401 homologous polypeptide.

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## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-33 (all partially)

Present claims 1-33 relate to a product/method/use defined (inter alia) by reference to the following parameter(s):

P1: homologous protein

P2: functional fragment

P3: modulator/effector of a nucleic acid or protein

P4: a nucleic acid being degenerated as a result of the genetic code to a defined nucleic acid sequence

The use of these parameters in the present context is considered to lead to a lack of clarity within the meaning of Article 6 PCT. It is impossible to compare the parameters the applicant has chosen to employ with what is set out in the prior art.

Furthermore, the present claims relate to a product/method/use defined by reference to a desirable characteristic or property, namely:

"wherein said mutation causes an alteration, deletion, duplication or premature stop in the encoded polypeptide"

"a polypeptide contributing to regulating the energy homeostasis or/and the metabolism of triglycerides"

The claims cover all products/methods/uses having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such products/methods/uses. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the product/method/use by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible.

Consequently, the search has been restricted to the parts relating to the compounds mentioned in Table I of the description at page 47, as well as to the general idea underlying the present application.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

# INTERNATIONAL SEARCH REPORT

Inter: Application No  
PO 03/10799

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0181590	A	01-11-2001	AU 6103901 A CA 2406264 A1 EP 1274849 A2 JP 2004511206 T WO 0181590 A2	07-11-2001 01-11-2001 15-01-2003 15-04-2004 01-11-2001
WO 0173060	A	04-10-2001	AU 4778201 A AU 4942301 A EP 1268818 A2 EP 1319078 A2 WO 0173059 A2 WO 0173060 A2 US 2002065406 A1 US 2002034807 A1	08-10-2001 08-10-2001 02-01-2003 18-06-2003 04-10-2001 04-10-2001 30-05-2002 21-03-2002
WO 0112819	A	22-02-2001	AU 6903800 A CA 2377662 A1 EP 1212433 A2 JP 2003507016 T WO 0112819 A2	13-03-2001 22-02-2001 12-06-2002 25-02-2003 22-02-2001